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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

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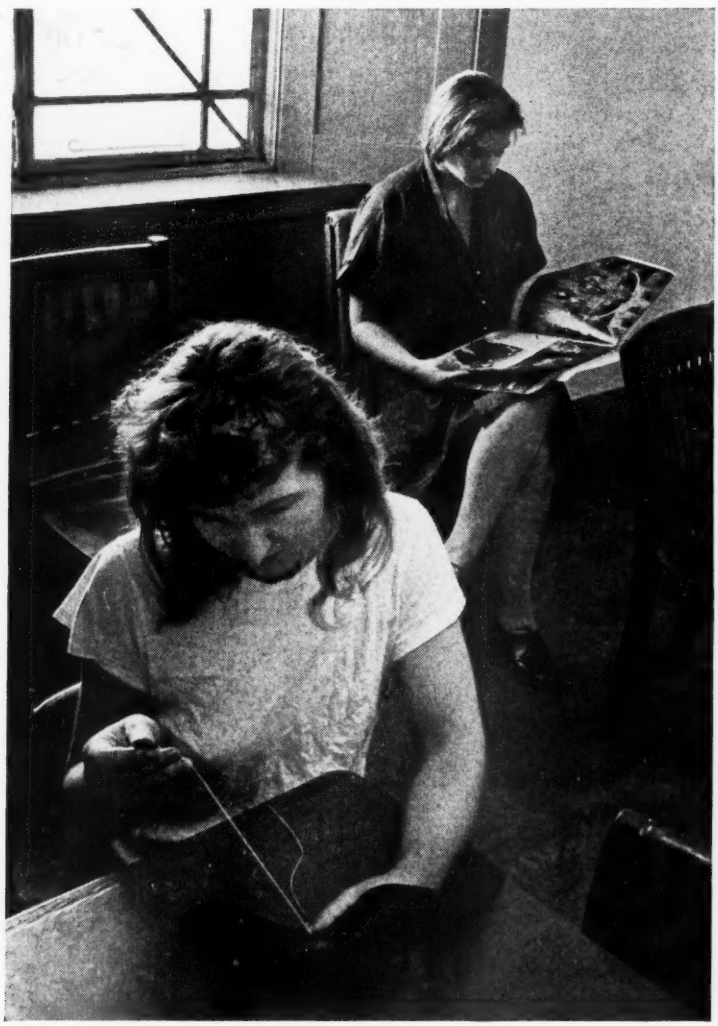

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DISEASES of the NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Physiological Evidence of Rapport During Psychotherapeutic Interviews

ROY COLEMAN, B.S., MILTON GREENBLATT, M.D., and HARRY C. SOLOMON, M.D.

The feelings of the therapist toward his patient are believed to be highly significant in determining the course of psychotherapy. Little, however, has been done to identify and objectify these feelings as a step toward their control and better utilization in the psychotherapeutic process. This study is an attempt to identify and analyze some "counter-transference" feelings aroused in a psychiatrist during his work with a patient using a unique psychophysiological approach.

I. The Experimental Environment

The therapy took place twice a week during a six-month period for a total of 44 interviews in a sound-proofed, temperature-controlled room. The therapist who was a 36-year old staff physician of the Southard Clinic in the final stages of his personal psychoanalysis, was seated facing the patient and conducted psychoanalytically oriented psychotherapy. The patient was 34 years old, married, and father of five children. He had recently received a Ph.D. degree from a western university and at the time of the treatment was employed at a lower level than would be commensurate with his intelligence and education. His chief complaint at the beginning of therapy was his lack of productivity and achievement, a symptom of long standing.

A polygraph apparatus located in an adjoining room and connected electrically with leads to the therapeutic chamber made possible the simultaneous and continuous recording of the EKG from both patient and therapist, the patient's respiratory cycles and finger skin temperature. A lapel microphone was attached to each individual, making possible recording on the polygraph of which individual was talking and how loudly. Three clocks summated the total talking time of the patient, of the therapist, and the total time of the interview. All conversation was tape recorded. Immediately after each interview, the therapist dictated a clinical account of the interview, and his thoughts and feelings during the interview.

Besides the automatic electronic recording of physiological and verbal phenomena, two observers, watching through a one-way mirror and listening through earphones, recorded coded signals directly onto the polygraph tape. This relieved the psychiatrist of being at once therapist and observer, and still permitted instantaneous categorization of interaction during the process of therapy. One observer recorded coded signals of interaction using a modification of the Bales Interaction Process Analysis;[1] the other recorded clinical judgments of the changes in affect expressed by the patient. In the pres-

From the Research Department of Boston Psychopathic Hospital and the Harvard Medical School, Department of Psychiatry.

Read before the Tenth Annual Meeting, Society of Biological Psychiatry, Chicago, June 11-12, 1955.

ent study, the observations which categorized the patient's emotional expression, the heart rates of both therapist and patient as recorded by the EKG tracings, and the comments of the therapist dictated after each session, were the basic data used to investigate the therapist's emotional relationship to the patient during the psychotherapeutic hour.

II. Definitions of Emotions

At the beginning of the therapy, a choice presented itself between using prearranged categories or permitting the categories to emerge with increasing understanding of the case. Convenience in testing for reliability, precision of the definition of the categories, and ease of communication favored the former procedure. However, it was felt that attempting to force the patient's behavior into a preconceived set of categories would result in loss of some of the more critical dimensions and distortion of data by setting too limited a framework. Since physiological differentiation between categories would provide an estimate of discreteness between them, a function similar to that which would be performed by a test of reliability, and since precision could be checked at a later date by reference to the content of the interviews, the decision was made in favor of the latter procedure.

The following are the cues on which the clinical judgments of patient's emotions were based. (Judgments were not recorded during singing, crying, etc., or during silent phases.)

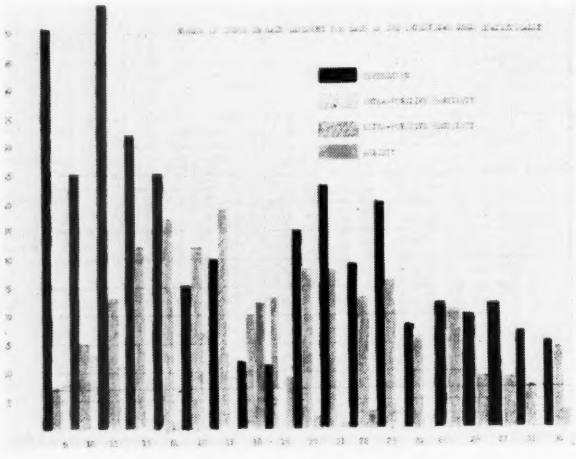
"Anxiety": In general, the patient displayed motor restlessness, overactivity, shakiness or jitteriness. More specifically, pitch of voice rose and a slight tremble was often present, rate of speech became more rapid and jerky. Facial expression and posture became tense, hand gestures became sharper, more rapid and jerky.

"Depression": Speech became slower and softer, and pitch of voice dropped. Corners of mouth drooped. Hand gestures became slower and broader. Posture was more relaxed. The over-all impression was one of sadness and hopelessness.

"Extra-punitive Hostility": Voice became louder. Pitch and rapidity of speech rose as with anxiety but fluctuated more rapidly and there was less tendency for words to stumble on each other. Body movements and gestures were directed outwards, usually in the direction of the therapist. The total pattern indicated irritability, anger, aggressiveness.

"Intra-punitive Hostility": The cues were the same as for "Extra-punitive Hostility" except that the object of attack was the self or an extension of the self. A note of disgust was present in the voice.

Since the emphasis was on recording emotional expression rather than categorization of total interviews, the judgments were recorded without regard to the general mood of the patient during the interview. The overall mood, however, is reflected in the relative number of observations recorded in each category (see Fig. 1). For example,



71 signals of Depression and 7 signals of Extra-punitive Hostility were recorded during the sixth interview and 30 signals of Depression and 39 signals of Extra-punitive Hostility were recorded during the 17th interview. The general mood for the sixth interview, then, may be inferred as being more depressed than hostile, for the 17th interview more hostile than depressed. Referring to the content of these two interviews, the sixth was largely concerned with the approaching interruption of treatment for the summer vacation, the patient's feeling of incompetence in his profession, and his certainty that he would never be able to reveal some of his deeply hostile feelings about the therapist and commence therapeutic work. By the 17th interview, the patient had re-

ceived enough support from the therapist to express his hostility. In general, examination of the content of the interviews supports the validity of the judgments given.

III. Relation of the Patient's Heart-rate To His Emotional Experience

Heart-rate was chosen as the physiological parameter to be correlated with the patient's emotional expression for two reasons: (1) Previous clinical and physiological studies[2,3,4] have shown a significant relationship between heart-rate and emotions; and (2) since it had been noted in this laboratory[5] that heart-rate was capable of major beat to beat fluctuations, it seemed advisable to use this parameter for correlation with the relatively rapid emotional changes observed in the interviews.

The procedure of analysis was as follows: The distance between successive QRS complexes on the patient's EKG occurring at the moment at which affect was identified was taken as a measure of heart rate. Through interview #21 the two beats immediately related to the affect signals were used; starting with interview #22 the paper speed of the polygraph was doubled, permitting measurement of single beats directly related to the signals of emotion. (Fig. 2 shows a section

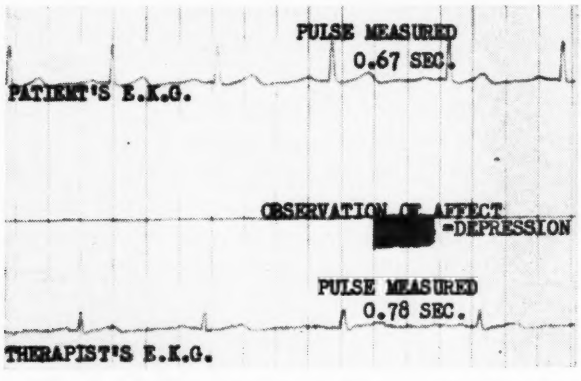


Fig. 2. Section of polygraph tape showing patient's E.K.G., therapist's E.K.G., a recorded observation of the patient's affect, and the pulses measured.

of the polygraph tape with the two EKG lines, the signals, and the places of measurement.)

The Mann-Whitney U Test,[6] a non-parametric statistic, was used to obtain probability values for comparison of the physiological differences between the categories within each interview. The probability values from each interview were then combined according to Jones and Fiske[7] to obtain overall levels of significance. When a category contained fewer than seven recorded observations in an interview, these observations were considered as being too few in number for statistical use and the category was disregarded; those interviews which did not have seven or more signals in at least two categories were rejected.

Fig. 3a sums up the results of these statistical comparisons:

1. Extra-punitive Hostility was associated with an average heart rate three beats per minute faster than Depression. (Significant beyond the .001 level.)
2. Anxiety was associated with an average heart rate ten beats per minute faster than Extra-punitive Hostility and 11 beats per minute faster than Depression. (Significant beyond the .001 level.)
3. Intra-punitive Hostility was associated with an average heart rate four beats per minute faster than Depression. (Significant beyond the .001 level.)
4. Comparison of Extra-punitive Hostility with Intra-punitive Hostility showed Intra-punitive Hostility associated with a slightly higher rate in six out of the seven interviews in which the comparison could be made. The seventh interview reversed this trend to a sufficiently large extent so that the combined results showed no statistical difference between the two categories.
5. No comparison could be made between Manifest Anxiety and Intra-punitive Hostility as the two categories never existed together in sufficient numbers in the same interview. In Fig 1 it can be noted that in the 18th interview Intra-punitive Hostility disappeared entirely with the first appearance of Anxiety and was only rarely signalled thereafter.

In general, the different affects were found to be associated with different relative levels of heart rate. More specifically, Anxiety was associated with the highest level of heart rate, Depression with the lowest level, and Hostility, both extra-and intra-punitive, fell in between.

IV. Relation of Therapist's Heart Rate To Patient's Emotions

Having established that the patient's heart rate changed with different emotions, we next studied the relationship between the therapist's heart rate and the patient's emo-

tions, in order to explore the possibility that a physiological relationship might exist in an intimate psychological interaction situation.

Fig. 3b sums up the results.

1. Extra-punitive Hostility was associated with an average heart rate 2 beats per minute faster than Depression. (Significant beyond the .01 level.)
2. Anxiety was associated with an average heart rate 5 beats per minute faster than Depression. (Significant beyond the .05 level.)
3. Extra-punitive Hostility showed no difference in heart rate from Anxiety.
4. Intra-punitive Hostility was associated with an average heart rate 3 beats per minute faster than Depression. (Significant beyond the .05 level.)
5. Intra-punitive Hostility showed no difference in heart rate from Extra-punitive Hostility.

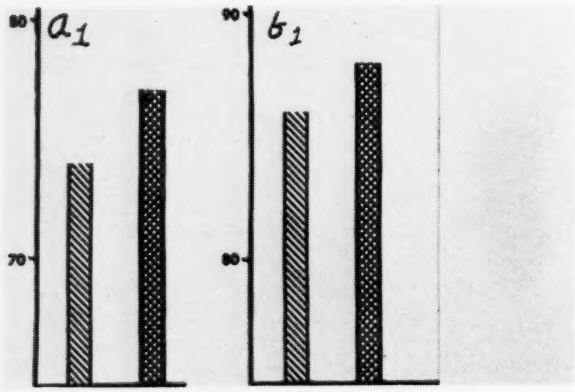


Fig. 3a. Patient's heart rate and psychiatrist's heart rate. Comparison of depression with extra-punitive hostility in 19 interviews.

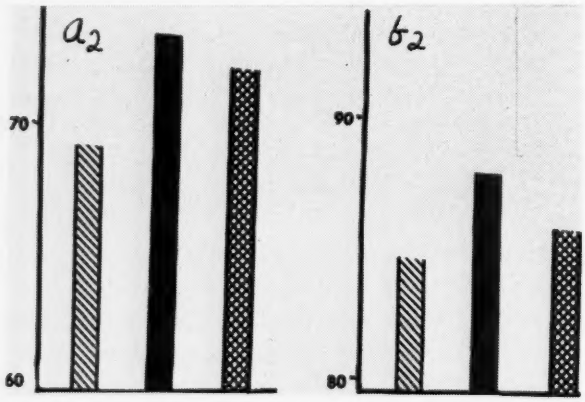


Fig. 3b. Patient's heart rate and psychiatrist's heart rate. Comparison of intra-punitive hostility with depression and extra-punitive hostility in 6 interviews.

Comparison of Fig. 3a with Fig. 3b shows the similarity between the pattern of therapist's and patient's heart rate changes when the patient was judged as showing various emotions. The therapist, then, reacted physiologically to the patient's emotional expression in a manner similar to the patient's physiological reactions to his own emotions. There was one exception to this similarity of response: The patient during Anxiety showed a significantly higher heart rate than during Extra-punitive Hostility, while the therapist showed no difference in rate between these two categories. (The therapist advanced the suggestion that during the two days when anxiety was predominant, he was inclined to view hostility as an attempt to master anxiety and therefore could have reacted similarly to the two emotions.)

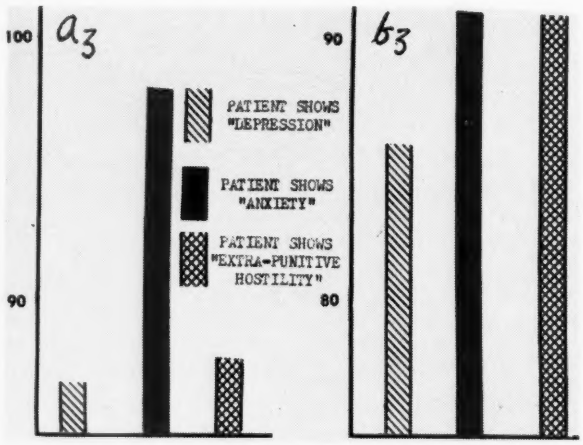


Fig. 3c. Patient's heart rate and psychiatrist's heart rate. Comparison of anxiety with depression and extra-punitive hostility in 2 interviews.

In general, the results indicate that the heart rate fluctuates continuously in accordance with shifts in affect, that qualitatively different affects are associated with discernibly different levels of heart rate, and that the therapist in this case exhibited an overall "physiologic relationship" with the patient.

As might be expected, however, the psychiatrist showed less pronounced differences in heart rate for different affects than did the patient. In the following section data will be presented suggesting that the physiologic relationship of the therapist to the patient fluctuates from interview to interview with the therapist's psychological relationship to the patient.

V. Relationship Between the Therapist's Psychological and Physiological Reaction to the Patient

The results presented in the preceding section demonstrated that the therapist dis-

played an overall "physiologic relationship" to the patient. This "physiologic relationship," however, tended to fluctuate from interview to interview, thus allowing for correlation of fluctuations in the therapist's psychological relationship to the patient with fluctuations in his "physiological relationship." The analysis to be presented in this section is concerned with the seventeen interviews in which Extra-punitive Hostility and Depression were compared, as comparisons between these two emotions could be made in the largest number of interviews. Our hypothesis was that during those interviews when the therapist's psychological and emotional relationship to the patient was disturbed either by the therapist being preoccupied with situations in his own life, or by productions of the patient or aspects of the patient's transference which would bear on the therapist's own unresolved conflicts, the "physiological relationship" would be at a minimum, and vice versa.

In order to judge the nature of the psychological relationship of the therapist to the patient from interview to interview, the comments dictated by the therapist immediately after each session were reviewed for the presence of statements indicating that the therapist had been disturbed during the hour. The resulting clinical impression was that while such statements occurred in all interviews, three interviews, the 11th, 15th, and 20th contained a far larger number than any of the others. As a rough quantitative estimate of the amount of disturbance present during each interview, the percentage of words devoted to statements indicating disturbance was calculated for each interview.

For the purpose of correlating the amount of disturbance of the psychological relationship of the therapist to the patient with the physiology, the interviews were ranked according to extent of physiological relationship. This ranking was based on (1) the extent to which the therapist associated the patient's expression of Extra-punitive Hostility with a faster heart rate than Depression and (2) the similarity of the therapist's and patient's response to the two categories. Thus the physiological ordering of the interviews took into account both the sensitivity of the therapist's heart rate response from interview to interview and the similarity of therapist's and patient's responses within each interview.

Correlation of the extent of the "physiological relationship" with the amount of disturbance to the psychological relationship is shown in Fig. 4 which compares the average

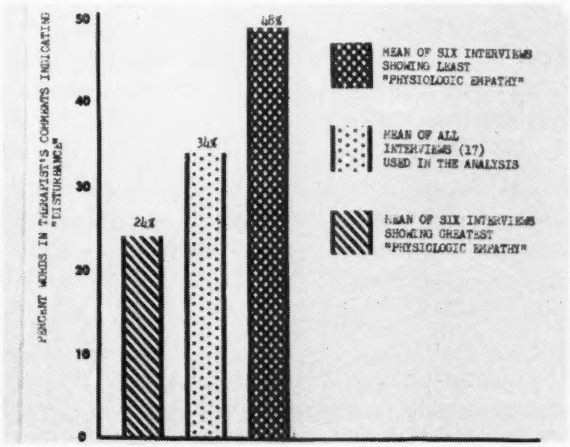


Fig. 4. Relationship between the therapist's heart-rate response to the patient's emotional expression and the percentage of words in the comments dictated by the therapist immediately after each interview indicating that the therapist's ability to emphathize emotionally with the patient had been disturbed.

percentage of words indicating disturbance in the six interviews showing the most "physiological relationship" with the average percentage of words indicating disturbance in the six interviews showing the least "physiological relationship." The six interviews during which the therapist displays the least "physiological relationship" were associated with twice the percentage of words indicating that he had been disturbed during the hours as compared with interviews during which the therapist manifested the greatest "physiological relationship." In other words, evidence of a positive physiological relationship of the therapist to the patient is in general found only during those interviews in which the therapist was rarely disturbed by his own preoccupations or by material in the patient's productions or aspects of the patient's transference which would bear on the therapist's unresolved conflicts. The correlation between the therapist's and patient's pulse changes, then, would seem to be a reflection of the psychological relationship of the therapist to the patient.

Discussion

Many early workers in the field of psychotherapy tended to emphasize the impersonal aspects of the therapist's role, conceiving of a patient interacting and relating as a total personality with a neutral and objective intellect. More recently it has been recognized that the therapist, no matter how "normal" or "well-analyzed," still brings into the therapeutic environment his individual personality, and that as a result, the process of psychotherapy is more realistically conceived as the relationship and interaction of two total personalities. Rather than denying both the individuality of the therapist and the emotional areas of his personality, the present trend of research seeks to investigate the therapist as a person and his relationship to the patient with the hope that knowledge and conscious use of his personality will increase his therapeutic effectiveness.

One aspect of the relationship of the therapist to the patient which many writers have viewed as of therapeutic value may be referred to as "empathy."[8,9,10] Reich, for example, states her attitude as follows: "The act of understanding of the patient's productions in analysis and the ability to respond to them skillfully is not based solely on logical conclusions. It seems obvious that this kind of insight into the patient's problem is achieved via the analyst's own unconscious. It is as if a partial and short-lived identification with the patient had taken place. The evidence of what is going on in the patient's unconscious, then, is based on an awareness of what is going on in the analyst's own mind."

Although it would be difficult to state with confidence the specific conditions under which empathy would occur, the intimate nature of the therapeutic interaction would in itself seem to encourage empathic feelings in the therapist. Empathy, however, would not be expected to occur at times when the therapeutic relationship may be disturbed by negative countertransference feelings or by the therapist being preoccupied with extratherapeutic concerns.

In the preceding section, it was shown that the physiologic relationship of the therapist to the patient was in general not found during those interviews when the therapist was disturbed. It appears likely, then, that the physiologic relationship observed in this case was a reflection of Reich's "partial and short-lived identification," or, phrased differently, a physiological manifestation of one aspect of the relationship of the therapist to the patient, namely psychological empathy.

It is realized that the data which form the structure of this study were drawn from only one case of psychotherapy. Clinical judgments of the therapist and other members of the project, comparison of psychological tests given before and after therapy and evaluated independently by two clinical psychologists, and a follow-up interview with the patient several months after the termination of therapy, all indicated that significant therapeutic progress had been achieved. The question remains, however, as to how far we can generalize from this one successful case to others.

No data have been presented to indicate that the therapist's empathy with the patient assisted him in gaining insight into the patient. Nor is it possible to judge if, in terms of the final results, the psychiatrist was more therapeutic in the interviews during which his relationship to the patient was least disturbed. The data do provide, however, tangible physiological evidence of the therapist's active emotional participation in a successful psychotherapeutic relationship.

Summary

The relationship of the therapist to the patient is believed to be highly significant in determining the course of psychotherapy. This study has utilized both psychological and physiological data from one successful case of psychotherapy in an attempt to objectify the therapist's feelings toward his patient during the course of therapy.

Analysis of the heart rate of the patient revealed *Anxiety* associated with the highest rate, *Depression* with the lowest, and *Hostility,* both extra- and intra-punitive, in between. The therapist's heart rate response to the patient's emotional expression repeated this pattern with the one exception that *Anxiety* showed no difference from *Extra-punitive Hostility,* thus revealing a

"physiological relationship" of the therapist to the patient. Analysis of the comments dictated by the therapist immediately after each interview indicated that the "physiological relationship" was not displayed by the therapist when his psychological relationship to the patient was disturbed by extra-therapeutic concerns or by negative countertransference feelings. These data provide tangible evidence of active emotional participation by the therapist during one successful case of psychotherapy. It is suggested that the physiological relationship found in this case reflects psychological empathy. Some of the limitations of the data are discussed.

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REFERENCES

1. Bales, R. F.: Interaction Process Aanalysis, *Addison-Wesley Press*, Cambridge, Mass., 1951.
2. Lasswell, H. D.: "Verbal References and Physiological Changes During the Psychoanalytic Interview," *Psychoanal. Review*, 22:10-24, January 1935.
3. Stevenson, Ian, Duncan, Charles H., Ripley, Herbert S.: "Variations in the Electrocardiogram Changes in Emotional States," *Geriatrics*, VI, 3: 164-178, May-June 1951.
4. Whitehorn, J. C., Kaufman, M. R., and Thomas, J. M.: "Heart Rate in Relation to Emotional Disturbances," *Archives of Neurology and Psychiatry*, 1935, Vol. 33, 712-731.
5. Progress Report Project 354-C, United States Public Health Service. Milton Greenblatt, M.D., Principal Investigator.
6. Mann, H. B., and Whitney, D. R.: "On a Test Whether One or Two Random Variables is Stochastically Larger Than the Other," *Ann. Math. Statis.*, 18:50-60, 1947.
7. Jones, L. V., and Fiske, D. W.: "Models for Testing the Significance of Combined Results," *Psychol. Bull.*, 1953, 50:375-382.
8. Binger, Carl: The Doctor's Job, New York, *Norton*, 1945.
9. Little, Margaret: "Countertransference and the Patient's Response to It," *Internat. J. Psychoanal.*, 1951, 32:32-40.
10. Reich, Annie: "On Countertransference," *Internat. J. Psychoanal.*, 1951, 32:25-31.

Studies of the Toxicity of Schizophrenic Blood Serum

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It has recently been suggested that an inherited biochemical aberration may be a dominant factor in the causation of schizophrenia,[1] and many attempts are being made to detect physiological differences between schizophrenics and normals and to describe schizophrenia in physiological terms.[2,3] Although not denying the importance of emotional influences, or the study of the subjective and descriptive aspects of psychology, this shift in emphasis has led to a more comprehensive approach to the problem of psychoses and should ultimately result in a more complete understanding of the manifest psychopathological phenomena. In view of this interest in the physiological manifestations of psychoses, reports of a toxic factor in the blood serum of schizophrenics which can be demonstrated by using tadpoles as test organisms seem particularly provoking.

It is difficult to make correlations with the available data as different genera and species of tadpoles and different concentrations of schizophrenic and normal serum are used, the details of the experimental technique are generally not clearly defined, and all the series involve a relatively small number of patients. The high spontaneous death rate of young tadpoles is another factor of undermined significance.[4] It is apparent, therefore, that some of the previous data should be tested. In addition, the present study was designed to extend the original observations by using planaria and a large number of a new genus and species of tadpoles, and by exposing tadpoles to the protein-free alcohol fractions of schizophrenic and normal serum.

The previous investigations report the presence of a toxin in the blood serum of

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schizophrenics which has not been detected by the usual means of examination; and if the results could be repeated their importance would be considerable, for perhaps a bioassay for this substance could be developed which would afford a new, objective method for the evaluation of diagnosis and treatment. Furthermore, if toxicity is present as indicated by these studies, then the properties of the toxic factor could be more clearly determined by means of manipulation of the serum prior to adding it to the tadpole medium. The cause of tadpole death would be another area for investigation.

Before proceeding with the report of the present study, it is germane to briefly review the work done by other investigators.

Using tadpoles of *Rana catesbiana* and a 1:1000 dilution of schizophrenic and normal blood serum in water, Lazell and Prince[5] found that within three days or less every tadpole exposed to schizophrenic serum was dead, whereas life and growth of tadpoles exposed to normal serum was sustained during the one-month period of the experiment. Above a concentration of 1:500 normal serum was also toxic, which seemed to indicate a direct intoxication with increasing concentration.

Malis[6] used the larvae of *Rana temporara* as well as the isolated frog and rabbit heart and peas as biological indicators of toxicity. With a concentration of 3 cc. serum to 200 cc. of pond water (1:66.6) he found, after an initial observation period, that tadpoles exposed to serum from schizophrenics exhibited a lag in their tempo of morphogenesis when compared with two control groups (no serum and serum from normals), and that frogs issuing from tadpoles in the group exposed to schizophrenic serum were of low viability, usually dying within twenty-four hours after transfer to a terrarium. In two series of experiments, the serum of acutely disturbed catatonic patients rapidly killed the tadpoles. In addition, the toxic action for tadpoles of spermocrin was stimulated by schizophrenic serum, whereas the toxic action of thyroidin was diminished.

More recently, Roland Fisher[7,8] used *Xenopus levis Daudin* larvae and exposed them to blood serum from normals and schizophrenics in concentrations of 1:100 and 1:50. Healthy control individuals exhibited a toxicity index of 1.2 and 3.3 in the 10 ml/L and 20 ml/L dilutions respectively, whereas corresponding values for a group of nonchronic schizophrenics were 5.3 and 8.4 respectively. The toxicity was greatest for acute untreated cases and seemed to parallel the physical status of the patients, gradually decreasing to values near normal with spontaneous remission or successful treatment. Dialysis or exposure of the serum to 56 degrees C for 30 minutes resulted in a disappearance of toxicity.

Twenty-five to 50 ml/L of urine from schizophrenics also caused a higher tadpole mortality than normal urine, and even after boiling for thirty minutes the toxicity was still present[7,8]

Fischer believes the toxicity to tadpoles is positively correlated with the degree of stress the patient is experiencing and suggests that the schizophrenic might have a genetically inherited abnormally low threshold for stress.[8] Georgi, Rieder and Weber[9] criticize Fisher's interpretations, and Rieder[10] reported results showing an inhibition of yeast cell metabolism by schizophrenic serum and the unsuitability of the *Xenopus* method for the detection of the toxic factor in the body fluids of schizophrenic patients. In rebuttal, Fischer[11] challenges this "unsubstantiated generalization" with regard to the unsuitability of the *Xenopus* method and further reports that using this method he detected ammonia as one of the main toxic factors in the urine of schizophrenics. Tadpoles possess no method for the detoxification of ammonia, which is their normal excretory product of protein metabolism;[12] and with the available water supply limited by the experimental conditions, addition of exogenous ammonia could result in poisoning. However, ammonia could hardly be a toxic factor specific for schizophrenia,[11] but it probably is a reflection of more acidic urine secondary to general factors such as diminished food intake and high protein catabolism.

Method

Bufo valliceps and *Rana catesbiana* tadpoles were maintained in 10% amphibian Ringer's solution which was changed every

two days, and they were given a daily feeding of boiled leaf spinach. Volume of water and number and age of tadpoles varied and will be reported separately with the results. All tadpoles were raised under laboratory conditions for at least two weeks before being used in an experiment, and the minimum observation period subsequent to exposure to schizophrenic or normal serum or the alcohol soluble serum fraction was also two weeks. Exposure time for all tadpole series was 24 hours.

The alcohol soluble serum fraction used in some of the experiments was prepared by pipetting off the supernatant of a centrifuged mixture of 1 ml. human serum to 4 ml. of absolute ethyl alcohol.

Dugesia dorotocephala planaria were maintained in group of five in Petri dishes containing 49 ml. of pond water which was changed every other day, and they were given daily feedings of liver. The planaria were cut transversely in the approximate midpoint of their AP axis, and the posterior ends were discarded. One ml. of serum was added to their medium, giving a dilution of 1:50, and the exposure time was 48 hours.

The laboratory is air-conditioned with a thermostatically controlled temperature of 70° F.

The patient population consisted of hospitalized schizophrenics, including representatives of all the major subgroups, at the Charity Hospital of Louisiana in New Orleans and the Veterans Administration Hospital, Gulfport, Mississippi. The patients were either acute reactions or chronic cases entering a relapse. No patient was on active somatic or drug therapy at the time the samples were obtained, and the patients were free from any intercurrent diseases.

Findings

In the first trial an attempt was made to determine the concentration of serum that would be directly toxic for *Bufo valliceps* larvae. Ten tadpoles were placed in each of 21 trays containing 250 ml. of dilute amphibian Ringer's solution; and after the initial observation period they were given a 24-hour exposure to serum dilutions of 1:100, 1:500, 1:1000 and 1:2000 of three patients and two normals, tray 21 having no serum added. Of the 80 tadpoles exposed to normal serum, 42% were alive after 3 days and 5% were alive after two weeks, whereas of the 120 tadpoles exposed to schizophrenic serum, 53% survived more than three days and 29% were alive after two weeks. The surviving tadpoles were found equally distributed among the several serum dilutions. Unfortunately, all but one of the tadpoles not exposed to serum also died within the two-week period, illustrating the unpredictable viability of young tadpoles.

In the second trial, *Bufo valliceps* tadpoles were raised in the laboratory from fertilized eggs for a period of 20 days, and *Rana catesbiana* tadpoles of unspecified age were obtained from a commercial biological supply house and kept under laboratory conditions for 14 days prior to the experiment. *Rana catesbiana,* the American, southern, giant bullfrog, was chosen in an attempt to duplicate the results of Lazell and Prince; and a concentration of 1:1000 serum — Ringer's was used as this had been reported by them as safely above the level of direct intoxication for *Rana catesbiana,*[5] and it was apparent from the first trial that this concentration was not directly toxic for *Bufo valliceps.* Ten tadpoles per 50 ml. solution were used for the *Bufo valliceps* series and four tadpoles per 500 ml. solution were used for the *Rana catesbiana* series.

The serum from 10 patients and 5 normal controls was used for the *Rana catesbiana* and first *Bufo valliceps* series, and the serum from 20 patients and 10 controls was used for the second *Bufo valliceps* series. Each series also had 5 control trays to which nothing was added. In addition, the alcohol supernatant of schizophrenic serum at a concentration of 1:200 was added to 10 trays each of the *Rana catesbiana* and first *Bufo valliceps* series. 1:200 was chosen as approximating the concentration of alcohol-soluble material in 1:1000 serum—10% Ringer's dilution as the alcohol was added to the serum in a ratio of 4:1 in preparation. It had been determined previously that 1:200 alcohol-Ringer's had no direct toxic action over a two-week observation period. The results of these series are summarized in Table I.

TABLE I.

Tadpole Survival After Exposure to Schizophrenic Serum

Description	Percentage Survival 3 days	7 days	14 days
SERIES I—*Rana catesbiana*			
1:1000 Serum-Ringer's (10 patients)	100	100	100
1:1000 Serum-Ringer's (5 controls)	100	90	75
1:200 Alc. fraction-Ringer's (10 patients)	100	100	97.5
Nothing added (5)	100	95	90
SERIES II—*Bufo valliceps*			
1:1000 Serum Ringer's (10 patients)	100	96	86
1:1000 Serum-Ringer's (5 controls)	100	98	98
1:200 Alc. fraction-Ringer's (10 patients)	100	99	93
Nothing added (5)	100	98	96
SERIES III—*Bufo valliceps*			
1:1000 Serum-Ringer's (20 patients)	99.5	94.5	88
1:000 Serum-Ringer's (10 controls)	100	97	97
Nothing added (10)	100	97	92

In addition to the experiments with tadpoles, a further attempt was made to test the statement of Lazell and Prince[5] that schizophrenia "affects not only those vital processes which control growth and differentiation but also those which induce metamorphoses from the stage of development to that of adult life" and to develop a simpler, less expensive method of assay using transected planaria. Seven patients and seven normal controls were used, and to seven trays nothing was added. At the end of the two-week period of observation, the number of regenerated planaria in the group exposed to schizophrenic serum was slightly greater than in the control groups.

Using four patients, four controls and *Bufo valliceps* larvae, the urine was also tested for a toxic factor with inconclusive results.

Comment

There are many possible reasons for the failure of these experiments to demonstrate a toxic factor in the blood serum of schizophrenics as there are a number of factors not subject to control when dealing with such complex material. The known unpredictable viability of young tadpoles as demonstrated by spontaneous deaths occurring in groups not exposed to serum may be an important factor, but this really explains very little. *Bufo valliceps* tadpoles may have special metabolic processes which make them peculiarly unfit as test organisms, and for the *Rana catesbiana* series the conditions of the experiments by Lazell and Prince[5] may not have been reduplicated. There is, however, no obvious reason why the experiments failed to demonstrate a toxic factor.

Objectively, the only conclusion warranted is that by employing a technique reported previously by several workers, a toxic factor in the blood serum of schizophrenics was not demonstrated using a large number of a new genus and species of tadpoles and one previously used, and using planaria. No definitive statement can be made about the toxicity of schizophrenic urine as the sample is too small.

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REFERENCES

1. Gerard, R. W.: The Biological Roots of Psychiatry, *Am. J. Psychiat.*, 112:83 (August) 1955.
2. Gellhorn, E.: Physiological Foundations of Neurology and Psychiatry, St. Paul, *The North Central Publishing Company*, 1953.
3. The Biology of Mental Health and Disease, New York, *Paul B. Hoeber, Inc.*, 1952.
4. Personal Communication, E. Peter Volpe, Ph.D., Dept. of Zoology, Tulane University, New Orleans, La.
5. Lazell, E. W., and Prince, L. H.: A Study of the Causative Factors of Dementia Praecox, *U. S. Vet. Bur. Med. Bull.*, 5:40-41 (January-December) 1929.
6. Malis, G. Y.: The Effects of Blood of the Mentally Ill on the Development of Larvae of Rana Temporaria, *Nevropat. i. Psikhiat.*, 16:66-68, 1947.
7. Fischer, R.: Toxicity of Schizophrenic Serum and Urine, Abstracts of Nineteenth Int. Physiol. Congress, Montreal, (Aug.-Sept.) 1953.
8. Fischer, R.: Stress and the Toxicity of Schizophrenic Serum, *Science* 118:409-10 (October) 1953.
9. Georgi, F., Rieder, H. P., Weber, R.: Remarks on Fischer's Article, "Stress and Toxicity of Schizophrenic Serum," *Science*, 120:504-06 (Sept.) 1954.
10. Rieder, H. P.: Biological Determination of Toxicity in Pathological Body Fluids, *Confinia Neurologia*, 14:65-87, 1954.
11. Fischer, R.: Communications, *Science*, 120:505-06 (Sept.) 1954.
12. Baldwin, E.: Dynamic Aspects of Biochemistry, *Cambridge Univ. Press*, 1949.

Cardiovascular Responses in Psychiatric Electrotherapy

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Psychiatric electrotherapy, in addition to its proven value in treatment, provides an unparalleled opportunity for carrying out observations on certain induced and temporary physiologic disturbances of the human circulatory mechanism.[1]

Since electrotherapy is given to patients with normal as well as diseased cardiovascular systems, and also since a patient usually receives a series of treatments (which fortunately from a scientific standpoint permits him to serve as his own control), observations of great value, especially on the role of the neurogenic factors in circulatory responses, may be carried out.

In addition to the theoretical matters which we have mentioned, there is the related practical problem of providing safe and effective electrotherapy to patients who are suffering from cardiovascular disease. In fact it was this aspect of the problem which first caused these investigations to be undertaken. Depression is a common psychiatric illness in older patients, and it is, of course, just within this age group that cardiovascular disease has its highest incidence. Also organic mental conditions, which may be ameliorated by electrotherapy, are more common in these older patients. Thus, the aim of theoretical investigation and that of practical management are joined in the study of the cardiovascular responses in psychiatric electrotherapy.[2]

In association with Drs. Lawrence H. Gahagan, D. Jeanne Richardson and Daniel Sheehan, a fairly extended series of observations on the circulatory reactions in electrotherapy have been carried out on patients under individual hospitalization at Doctors Hospital. Pathologic conditions of the circulatory apparatus found in these patients included aortic aneurysm, valvular (rheumatic) heart disease, old coronary artery disease with healed myocardial infarction, myocardial insufficiency, cardiac rhythm disorders, hypertensive and arteriosclerotic heart disease.

There is substantial evidence that failure in the cardiovascular system is the main cause of death associated with electrotherapy.[3] The electric stimulation of the brain sets into action a sudden and also slightly delayed series of disturbances in the circulatory system; these are neurogenic or, perhaps in some respects neuro-endocrine, responses. (Parenthetically, it seems to me that the expression "electro-shock" is a misnomer; there is no shock in any medical sense of the word unless, of course, the patient should go into a state of shock as a result of the treatment. This unhappy phrase should be avoided.)

There are five main manifestations of cardiovascular strain in unmodified electroconvulsive therapy (Table I):

1. Disturbances in the initiation and conduction of the cardiac impulse. These cardiac arrhythmias are classified, according to their origin, into (a) vagal and (b) extravagal.

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TABLE I.

MAIN SIGNS AND SOURCES OF CARDIOVASCULAR STRAIN IN UNMODIFIED ELECTROCONVULSIVE THERAPY

1. Cardiac arrhythmias.		
a. Vagal		PREVENTED BY ATROPINE
b. Extravagal.		
2. Paroxysmal arterial and venous hypertension.		
3. Increased work of the heart.		PREVENTED BY MODIFICATION WITH I.V. BARBITURATE ANESTHESIA PLUS SUCCINYLCHOLINE (MYONEURAL) BLOCKADE
4. Valsalva phenomenon.		
5. Hypoxia.	PREVENTED BY 100% OXYGEN INSUFFLATION PLUS	

2. Paroxysmal arterial and venous hypertension.
3. Increased work of the heart.
4. Valsalva phenomenon.
5. Hypoxia.

Before considering the means for reducing or eliminating these sources of cardiovascular strain in treatment, we need to remind ourselves that the adequacy of the coronary circulation is a factor of prime importance. Thus, in the presence of a diseased or constitutionally inadequate coronary circulation, any of these strains, listed above, may become intolerable.[4,5] Unmodified electrotherapy produces temporarily circulatory changes which resemble important forms of cardiovascular disease, e.g. rhythm disorders, vascular hypertension, coronary insufficiency, myocardial insufficiency, cardiac dilatation, etc. It is only because of the transient nature of these phenomena that we speak of them as resembling cardiovascular disease rather than being actually of that nature. But, of course, whenever a death in treatment occurs, these phenomena then may have the equivalence of actual cardiovascular disease.

Through the use of various modifying procedures, these sources of strain in treatment may be eliminated or reduced. The problem is not completely solved. In Table I there are indicated the most effective means for preventing certain forms of cardiovascular strain in treatment. The word "prevent" here is used advisedly.

Vagal arrhythmias can be consistently prevented by adequate atropinization.[6,7] We recommend an intravenous dose of 1.2 to 2.4 mg. (1/50 to 1/25) of atropine sulfate.[1,2] We urge that atropine be used routinely.

Increased work of the heart and Valsalva phenomenon can be prevented by modification with intravenous barbiturate anesthesia plus succinylcholine (myoneural) blockade.[8,9,10,11,12] Whenever 100% oxygen insufflation is also used, hypoxia is prevented.[1,8,12]

The two forms of treatment-induced cardiovascular strain which are not prevented by the entire above-described technique are extravagal arrhythmias and paroxysmal vascular hypertension. The incidence and severity of extravagal arrhythmias may, however, be reduced by quinidine or chlorpromazine.[1,7,9,13] We have not tried procaine amide; but it may be helpful in this regard. In Table II is shown a classification of treatment-induced arrhythmias, both vagal and extravagal, which are classified according to their severity.

Paroxysmal hypertension, which is rapidly induced at the time of treatment and which may last for as long as one-half hour, has not been so far prevented.[1,10] Preliminary observations on tetraethylammonium chloride administered intravenously a few minutes before the electric stimulation, however, indicate that this drug may significantly reduce the severity of the rise in blood pressure as well as also have a quieting effect upon that part of the neurogenic mechanism, which produces the arrhythmias in treatment.[14] Thus, it is now feasible to prevent or ameliorate all the known manifestations

TABLE II.

CARDIAC ARRHYTHMIAS, TREATMENT-INDUCED, ACCORDING TO THEIR SEVERITY

1. Mild	Atrial premature contractions. Scattered ventricular premature contractions (VPC's). Short runs of VPC's. Occasional short pause.
2. Moderate	Frequent VPC's with long runs of bigeminy or trigeminy. Asystole up to 2½ seconds.
3. Severe	Frequent VPC's of varying patterns and with beginning disruption of the basic cardiac rhythm. Asystole for from 2½ to 5 seconds.
4. Very severe	Ventricular tachycardia. Disruption of the basic cardiac rhythm, resembling ventricular fibrillation. Asystole for more than 5 seconds.

of cardiovascular strain in treatment. Undoubtedly further significant improvement will be available in the future.

Finally, we would like to express our opinion, as a cardiologist, as to the safety of electrotherapy. Although electrotherapy characteristically produces a variety of sudden and intense circulatory responses, these disturbances rarely leave after-effects or organic residues. Similar disturbances of intrinsic cardiovascular origin, on the other hand, are frequently dangerous. That is to say, similar disturbances arising as a result of cardiovascular disease, are usually signs of severe disease of the circulatory system. The fact that the duplicate disturbances, induced as an unwanted by-product of psychiatric electrotherapy, are usually not dangerous is perhaps explained by their central origin, i.e., the result of electric stimulation of the brain, and their transient nature. Even patients with severe cardiovascular disease can, as a rule, tolerate electrotherapy, whenever the treatment is carefully managed.[2] Patients with vascular hypertension, for example, can tolerate the additional, temporary hypertensive effects, and then have a return to the pre?treatment hypertensive level.

With proper management there are relatively few cardiovascular conditions which would contra-indicate simultaneous electrotherapy. These adverse conditions are probably limited to severe congestive heart failure, acute coronary thrombosis with myocardial infarction, and certain rare and dangerous cardiac arrhythmias, such as ventricular tachycardia. In all of these ailments it is usually possible to improve the heart condition before starting a course of electrotherapy.

We can safely say that usually the untreated psychiatric illness, for which electrotherapy is indicated, involves a greater risk than does treatment in the presence of cardiovascular disease. As a fair example of the risk in treatment, there have occurred over a six year period five deaths in association with electrotherapy, modified and unmodified, at Rockland State Hospital, Orangeburg, N. Y.[4] These deaths were associated with 70,000 treatments in 5,325 patients. In this extensive series, the case fatality rate, therefore, was one in 1,065, and the treatment fatality rate was one in 14,000.

REFERENCES

1. Lewis, W. H., Jr., Richardson, D. J., and Gahagan, L. H.: Cardiovascular Disturbances and Their Management in Modified Electrotherapy for Psychiatric Illness, *New Eng. J. Med.*, 252: 1016-1020 (June 16) 1955.
2. Gahagan, L. H.: Circulatory Responses in Electroshock Therapy, in *Cyclopedia of Med., Surg. and Specialties.* Edited by G. M. Piersol. Philadelphia: Davis, 1954 Review Service Volume. Pp. 253 and 254.
3. Maclay, W. S.: Death Due to Treatment, *Proc. Roy. Soc. Med.* (London) 46: 13-20 (Jan.) 1953.
4. Alexander, S. P., Gahagan, L. H., and Lewis, W. H., Jr.: A Report of Five Deaths in Psychiatric Electrotherapy, with Necropsy Findings in Four of the Cases, *J.A.M.A.* To be published.
5. Altschule, M.D., and Tillotson, K. J.: Mechanisms Underlying Pulmonary and Cardiac Complications of Electrically Induced Convulsions, *New Eng. J. Med.*, 238: 113-115 (Jan. 22) 1948.
6. Hejtmancik, M. R., Bankhead, A. J., and Herrmann, G. R.: Electrocardiographic Changes Following Electroshock Therapy in Curarized Patients, *Am. Heart J.*, 37: 790-805, 1949.
7. Bankhead, A. J., Torrens, J. K., and Harris, T. H.: Anticipation and Prevention of Cardiac Complications in E.C.T., *Am. J. Psychiat.*, 106: 911-917, 1950.
8. Alexander, L., Gilbert, I. E., and White, S. E.: Unidirectional Electroshock Relaxed by Succinyl Chloride, *Confinia Neurologica*, 13: 324-332, No. 5/6, 1953.
9. Alexander, L.: Treatment of Mental Disorder, 507 pp. Philadelphia: *Saunders*, 1953.
10. Holmberg, G., Thesleff, S., von Dardel, O., Hard, G., Ramquist, N. and Pettersson H.: Circulatory Conditions in Electroshock Therapy With and Without a Muscle Relaxant, *Arch. Neurol. & Psychiat.*, 72: 73-79, (July) 1954.
11. Norwill, W. K., Wilson, W., and Borders, R.: Succinylcholine Chloride in Electroshock Therapy. II. Cardiovascular Reactions. *Arch. Neurol. & Psychiat.*, 71: 189-197, 1954.
12. Wilson, W. P., Hickam, J. B., Nowill, W. K., and Frayser, R.: Succinylcholine Chloride in Electroshock Therapy. III. Oxygen Consumption and Arterial Oxygen Saturation, *Arch. Neurol. & Psychiat.*, 72: 550-554 (Nov.) 1954.
13. Green, R., and Woods, A.: Effects of Modified E. C. T. on the Electrocardiogram, *Brit. M. J.*, 1: 1503-1505 (June 25) 1955.
14. Gahagan, L. H., Richardson, D. J., Lewis, W. H., Jr., and Sheehan, D.: Further Studies in the Cardiovascular Responses in Modified Electrotherapy for Psychiatric Illness. To be published.

Deliberate Lying and Unwitting Distortion of Fact as a Mode of Resistance in Psychotherapy

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In the course of this paper, I propose to be somewhat loose about the use of the terms "deliberate lying" and "unwitting distortion," but in each of the three illustrative cases I hope to be able to show what the underlying needs are that make for conscious or unconscious distortion.

In psychotherapy, I saw a person who had had throughout his life serious difficulties in his mode of social adjustment, which were built around passive or submissive techniques. This patient worked assiduously on his then current difficulties which centered around his problems with authority, and in our effort to get at the genetic basis for his unhappiness, he worked intensively on his relationship to his parents, especially his father who had committed suicide when the patient was sixteen. In the course of therapy, the picture of his family changed from dark gray to almost black, and at a point where the picture could not be made any darker, he told me that from what he now knew about his unhappy relationship to his parents, he could understand the development of his present intense insecurity.

This statement was made after he had been in therapy for one year. At this juncture the patient began to markedly deintensify his therapeutic work and appeared tense, preoccupied and depressed. I was ineffective in discovering with the patient what was going on. We simply rehashed matters that apparently had no bearing on what was making for the almost complete shut-down of his contribution to the therapeutic effort.

After this let-up had lasted for some weeks, he came in one day and said, "I've been deathly afraid to come here for I don't know how long, and I'm scared to tell you today what's been on my mind, but I've got to tell you before it runs me crazy. Ever since I finished telling you about what my parents did to me as a child, I realized I had told you a bunch of lies which I believed myself, until I got home one night and started thinking about what I had been telling you. The first thing I realized was that Dad didn't come home every night at five o'clock and beat hell out of me, like I'd been telling you. He only beat hell out of me once, when mother called him home around five o'clock to punish me. I don't remember what I was punished for, but I do remember the beating." After the patient had revised several other stories, I asked him why he felt he would go crazy if he didn't deliver himself of these corrected versions of his stories. He replied, "I was afraid if I told you I had been lying, I would be kicked out of therapy. To realize I wasted so much of your time telling you things that were absolutely untrue, has made me shudder to think of what you might do."

The patient went to New York to visit his mother the weekend of the session just referred to. He asked his mother if she remembered calling his father home to punish him when he was about six years of age. She said that she had never forgotten the incident—that the beating was so severe that she had often regretted calling the father home. The patient then asked his mother why his father had been called home. The mother answered, "You frightened me horribly that day. I couldn't find you. When you came home you told me that you had been waiting for school to be out so you could play with Jerry, but Mrs. Brown said later on that afternoon, that she found you playing with Sarah in an unnice way in her bathroom, and she demanded that I do something about it."

The patient later pointed up during therapy that the sex play, to him, did not seem to be nearly as important, in connection with the beating, as the fact that he had told a lie. He then spent time discussing how a lie might be the equivalent of a brutal beating from me, i.e., the possibility of my abruptly dismissing him from psychotherapy. Following this, we went into his tendency to paint his life in the blackest of colors. It came out that he had indulged in such descriptions from an early age—that they had served him many times as a method for getting attention and sympathy, but only recently had it dawned upon him that they were either exaggerated or totally untrue.

I learned from him that a distortion, conscious or unconscious, in an emotionally sick individual probably has important roots in early interpersonal anxiety-producing experiences. If I had to interpret how this person came to recognize that he was overdrawing the significant unhappy events of his life, I would say that my unwitting acceptance of his unwitting distortions created within him an intuitive awareness that he could risk identifying his distortions as such, and after so doing, was able to see that they were no longer needed as a means of gaining acceptance in the therapy situation.

I also learned, especially in my later work with this patient, that even when he ques-

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tioned his own statements and apparently wanted to tell the truth, each story had to go through a varying number of versions before the true story was produced.

A Dutch psychotherapist, whose name I cannot recall, said that each patient has to tell his life history seven times before he can give an honest rendition of the facts. This statement alerts us to the need to be patient with contradictions, distortions and lies we hear from patients, but the fact that telling the story seven times may, in itself have no intrinsic value, is pointed up by a patient who came into therapy to see if anything might be done about his homosexuality.

This patient, in his initial work, appeared to go all out for therapy. I might add that I have never had a patient make such diligent, almost full-time investment of his energy in therapy. His habit was to come in and pick up where he left off the preceding hour, and push forward into exploring and uncovering the basis for whatever facet of his problem he was working on at the moment. Affect and content went hand in hand and revisions, formulations and reformations, without much participation on my part, were periodically presented. Once I found myself quite intrigued with his latest formulation of the dynamics of his homosexuality. Besides feeling intrigued, I wondered about something and expressed my wonder to the patient in this way: "I have listened with great interest to your latest formulation and your report of progress, but tell me why, with this reported improvement in your understanding of homosexuality, there is never any mention of movement in the direction of the opposite sex." Immediately after I completed my question, the patient gave me a fierce agitated look, got up from the couch, and walked out of my office. I felt considerable anxiety about the radical change in his behavior that my question provoked and out of my anxiety I tried to contact him by telephone, but failed. I was greatly relieved two days later to see him in the reception room awaiting his appointment. As he got on the couch, he said in part: "I've never told you before that I came here originally to escape prosecution. For this reason I wanted you to think I was better than I actually was, in case you received notice to give a report to the County Attorney. I had asked him not to bring you in on my case for reports, and to trust me to let him know if I didn't get better. But all along I've been expecting you to tell me that you knew I was in legal trouble and that you would have to send a report in on me. When you said I hadn't talked about making any movement in the direction of the opposite sex, I knew what your report would be if you were called on to give one. Well, I know I've been trying to kid you, and early in the work I succeeded in kidding myself about my getting better, but I think now that maybe you realized before I did that I was trying to put something over on us both. I think I've been wanting to come in here and tell you the truth about myself, but it looks like my old habit of telling lies and trying to get away with them is catching up with me." After listening to the patient's full account of what happened within himself, during the interval between this and his previously aborted hour, I suggested that we find reasons for his being here, other than to ensure my writing the County Attorney a good report if the need arose. He pointed out that he needed and wanted help, but didn't feel that he had accomplished anything so far in his effort to elaborate clues from books he had read which fitted his case. I wondered aloud if it wouldn't be well for him to drop his reading and to take himself more seriously. At this suggestion, he looked at me quizzically and said, "I have never taken myself seriously—nor has anyone else." Since his response seemed to be especially serious, I repeatedly, through the months, brought him back to it, and pressed for its elaboration. One day he came in and said, "I think I know now why I lie and cover up my real intentions, whether I'm here or anyplace else. You know I've told you many times that mother and dad never took me seriously; never gave me any approval—just criticized. I've told you, too, that I was afraid to go against them, so I acted like I was going along with them. I told them what they wanted to hear and did just enough of what they expected to make them feel that I was with them one hundred per cent. Well, one day I was falsely accused by my father for what J. had done with one of the girls in the neighborhood, and I couldn't clear myself. It was held against me by all of the adults in the neighborhood. But from then on, J. became my hero. He didn't give a damn what he did; he lied, stole, cheated, had sex with both boys and girls, and told everybody, including his folks, where they could go. I started having sex with him and the same girls that he had sex with. I also started cheating at school, and stealing anything that wasn't nailed down. The only thing I couldn't do that J. did was raise hell with my folks and tell them where to go. When J. moved to another town I cried like a baby, but everytime I meet someone that's a little bit like him, I go all out for him. With everyone from J. on, that I've been mixed up with homosexually, I'd lie for, steal for, even kill for, if I thought I could get away with it." In responding to the patient, I said: "It appears you used J. and people like him, who were not afraid to express their feelings, to make up for your fear of dealing directly with your resentments toward your mother, father, and people who reminded you of them. It's no wonder, with your fear of giving honest expression to your feelings, that when you and your parents are at odds, you resort to lying to escape conflict with them, or to homosexual relationships with people like J. to get some feeling of belonging." Since the latter exchange with the patient, we have focused on his interpersonal anxieties, especially his resentments in conflict

situations involving either his parents, his present superior, or myself. Currently, his verbalization of his feelings is far ahead of his ability to use them constructively in his significant relationships. The latter is shown by the continuing, though lessening, tendency to get involved in a defensive network of lies on his rather frequent visits to his parents' home.

In this patient, unwitting distortion and deliberate lying have served his anxiogenic needs to express covert defiance toward, and to escape conflict with, his parents and authority figures. These same mechanisms also permitted him to kid himself into thinking he had achieved considerable improvement in his early therapy. Relative to his relationship to me, his tendency toward distortion has been more or less that of subtle or unconscious self-deception. Of late, he has made efforts to persuade himself about his confidence in me, as his therapist, by referring two persons who have identified him as the referring source. On the other hand, he has dreamed of having a hernia which he wants to have operated. As he goes to the office of the surgeon he has serious doubts about the surgeon's ability to do the operation successfully. The dream ends while he is making up his mind about what to do. When I confronted him with the possibility that he might have serious doubts about my ability as a therapist, he quickly retorted, "Doctor, didn't I just recently refer you two patients?"

There is no question in my mind but what I am now dealing with an attitude in the patient that unwittingly distorts his true feelings about me, and I am also aware that it will be some time before he will dare to risk his doubts about my competence and ability to see him through to a successful solution of his principal problems.

In contrast to the two cases thus far discussed where the distortions, conscious or unconscious, were for the most part passive-aggressive in their function, I would like to present briefly one additional case in which the distortions consciously served aggressive ends.

The aggressiveneness in this case was manifested in the form of flagrant, conscious lying, and the embezzlement of funds. Needless to say, this person came into therapy under duress. His wife was threatening to leave him and take their only child with her. His parents, who had put him up in business, were upset because of his embezzlement of business funds.

As I listened to this man talk about the frequent so-called "business trips" to the big city, all for the sake of spending an evening with a different woman each time, I was impressed by the great loneliness that he lived out, but did not recognize. I was impressed, too, by the endless testing his wife had to endure in his repeated acts of infidelity, about which he consistently presented tell-tale evidence that allowed him to be caught and convicted.

His therapeutic relationship to me for a number of months, was essentially one of open dishonesty. I made the usual effort to get at the historical interpersonal roots of his loneliness, his hostility, and his dishonesty. The effort was futile, until his family advised me that more business funds had been embezzled. They told me to apprise him of their decision that they would again replace the missing funds, but that this would be the last time.

For about six months after this, the business operations went smoother, and the frequent embezzlements ceased. At home, however, matters worsened between himself and his wife. He showed during this period, progressive irritation toward his wife and child. His wife indicated that his inability to finance "business trips," no doubt, contributed to this irritation. One morning she informed me that she could no longer endure the situation, and was taking herself and the child to Florida. I suggested that she had a definite obligation to herself and the child, and that evidently she felt that her decision was the best way of meeting that obligation. Shortly thereafter I got a call from the patient to tell me that his wife was leaving, and asked if I could do anything about it. I told him that his wife's considered decision was the best way she knew of meeting her obligation to herself and to the child.

The next time I saw the patient was after his wife had left him. Many times in previous sessions, he said he could not be sure that he had ever loved anybody. But this time, he said he was surprised to find himself anxious that she had left him. He went on to say that his wife had put up with him, had loved him as much as anybody could, and that he was only beginning to wonder why she had stayed with him as long as she had.

After this statement I felt, for the first time in nine months of therapy, that he wanted to get at something. It was several weeks later, however, that he made the statement that he had never felt that anyone could really care for him. It was in connection with this feeling that he discovered his own reactive attitude, "I don't care for anybody," which was manifested in lying, in embezzling activities, and in total disregard of others.

His anxiety to have his wife back seemed to deepen from session to session, and this feeling was reflected in his letter which his wife quoted, in part, over the telephone to me, while she was in Florida. The significant quotation was: "You couldn't have put up with me if you hadn't cared." His wife wanted to know if I would advise her to go back to him. I told her that that would be a matter she would have to decide for herself.

At this writing the patient and his wife are together again. The patient's comment the other day was, "I am taking your advice and having an affair with my wife."

This case points up to me, better than any case I've ever had, that a conscious liar

may express through his lying a desperation about his loneliness and his not belonging, that might be overlooked if his lying is simply regarded as a bad habit that he is aware of, and therefore should control.

I would like to devote the remainder of this paper to a few enumerated remarks about the general therapeutic handling of patients who consciously, or unconsciously, distort:

(1) The most essential component in the relationship of the doctor and the distorter, as in any therapeutic relationship, is rapport. Not even minimal rapport can develop, however, unless the doctor is aware that in emotionally sick people, a distortion be it conscious or unconscious, binds anxiety and increases security.

(2) The distortion, in accordance with my own therapeutic bias, can best be understood in the context of the interpersonal field. In this connection the intrapsychic or interpersonal need that the distortion serves, can frequently be discovered.

(3) Study of the basis for a distortion can be disrupted by anxiety on the part of either the patient or the therapist. Ideally, the therapist should be a person who specializes in the handling of resistance, but since this is impossible, it is important that he become aware of his hypermoralistic and narcissistic trends, thus minimizing the possibility of his getting in the patient's way. If he is not aware of himself as a hypermoralistic person, he may set up a system of impossible standards for the patient to abide by in therapy. If he is not aware of his narcissism, he may react to a distortion as an expression of hostility toward himself, and express counter-hostility by demanding that the tendency toward distortion be given up prior to the patient's understanding of the need which inspired it.

To recapitulate: The liar or distorter as a person must be respected as a whole. He must be allowed to lie and to tell the truth, more or less, at his own rate, rather than run out of the therapy situation with the wonderful knowledge that the therapist is too smart to be fooled. If the therapist remains aware that the patient may cheat at what he deep down wants most, i.e., self-knowledge, but that there are reasons for the cheating (the same reasons that make for problems in other areas of living), he may help the patient to a hard-earned awareness of himself, and to a more meaningful, effective and comfortable way of life.

Addendum No. 1: It has been my experience in recent years to become aware that patients frequently enter therapy with marked illusions about what they hope to gain from the therapy. One patient, after he had been in therapy for over two years, told me that he was just beginning to realize that it was not part of my therapeutic program to train him to be a lay analyst, and that if he had known that that was not my intention, he would have left therapy long ago. On the basis of such experiences, I sometimes regard it as fortunate that I am not, at the outset, aware of the secret illusions or unwitting distortions that patients privately entertain, which helps them to stay in therapy, for it would be my disposition to investigate or attack such material, in many instances, prematurely, and thus create more anxiety than I could possibly relieve.

Addendum No. 2: As a comment on the second illustrative case, when I raised the question about his showing no movement in the direction of the opposite sex, I was in nowise aware of the possibility that this man would have the terrific anxiety that resulted in his leaving my office. In retrospect, I can say that my challenge turned out, to have the salutary effect for this man to get into actual therapy on a serious basis. Had I been able to anticipate his reaction, I never would have risked my remark, albeit our rapport was sufficiently adequate for him to be able to endure lesser degrees of anxiety. If I could anticipate patients' reactions to some of my statements, I feel that I would kill off a great deal of helpful spontaneity that makes for movement in my work with them. This, because when a therapist is working against resistance associated with distortions and lies he needs to play those hunches that strike him as intuitively sound.

Agranulocytosis While Receiving Combined Reserpine-Chlorpromazine Therapy

(Report of Two Cases)

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It has been known previously that chlorpromazine potentiated the effects of hypnotics and sedatives. Because of this, we decided to investigate the effect of combining reserpine and chlorpromazine. At first only those cases which failed to respond to reserpine alone were given the combined medication. It was soon learned that chlorpromazine definitely potentiated the clinical effects of reserpine. Early results were so encouraging that a much larger group of patients was placed on this combined therapy. A report of the therapy has appeared elsewhere.[1] The general dosage schedule used was as follows:

The patient was started on 3 mg. reserpine and 25 mg. chlorpromazine orally once a day. After about ten days the chlorpromazine was increased to 25 mg. twice a day. At the end of three to four weeks, if the patient was not showing satisfactory progress, the dose of chlorpromazine was increased to 50 mg. twice a day, reserpine remaining at 3 mg. daily. After another three to four weeks, if the patient's therapeutic progress was still unsatisfactory, 5 mg. reserpine intramuscularly was added to the oral regimen. This was continued for ten days. If the patient then showed signs of responding to therapy, intramuscular medication was gradually withdrawn, but the oral medication remained unchanged until the close of therapy. If, however, after ten days of intramuscular injections, the patient was not showing an adequate therapeutic response, the intramuscular dose was raised to 10 mg. and was continued until the response was adequate; then intramuscular injections were gradually withdrawn, leaving only the oral medication. A course of therapy lasted a minimum of three months.

If at the outset the patient was extremely disturbed, and an early quieting effect was necessary, the patient was started on 5 mg. reserpine intramuscularly, and 3 mg. reserpine and 25 mg. chlorpromazine orally once a day. After ten days the chlorpromazine was increased to twice a day, and, if the patient's progress was satisfactory, the intramuscular injections were gradually withdrawn. However, if progress was still not satisfactory, the injections were continued for another ten days. Then, if necessary, the intramuscular dose was raised to 10 mg. After improvement was sufficient to discontinue this initial course of intramuscular reserpine injections, the subsequent dosage regimen was the same as outlined in the preceding paragraph.

The purpose of this paper is to report two cases of agranulocytosis occurring while the patients were receiving combined reserpine-chlorpromazine therapy. These two cases were from a group of 303 female patients who had received the combined medication for three to seven months.

Case Reports

M. S. is a 40 year old, married, white female. She has a diagnosis of Dementia Praecox, Paranoid type, and has been continuously hospitalized since 1942. At the time of her admission the patient was seclusive, withdrawn, preoccupied, delusional and hallucinated, with periods of abusive, assaultive and destructive behavior. Her general physical condition was satisfactory except for some evidence of malnutrition. Despite a course of twenty electroconvulsive treatments in 1947, the patient's mental state gradually deteriorated, and her disturbed periods became more frequent. She was uncooperative, resistive, destructive to her clothing, noisy, abusive and impulsively assaultive. She was started on reserpine therapy on August 13, 1954, receiving 5 mg. intramuscularly and 3 mg. orally once a day for the first ten days, and then receiving a daily maintenance dose of 3 mg. orally. She showed a

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moderate improvement, becoming clean, neat cooperative, quiet, but remaining idle, seclusive, apathetic and hallucinated. In an effort to raise her level of improvement she was started on combined reserpine-chlorpromazine therapy on December 29. In addition to the oral dose of 3 mg. reserpine, she received 25 mg. chlorpromazine daily for the first twelve days. Then the chlorpromazine was increased to 25 mg. twice a day. Because she was not showing satisfactory improvement, the chlorpromazine dose was raised to 50 mg. twice a day on February 14. A few days later she complained of not feeling well physically, although there was no complaint referable to a specific organ. Physical examination at this time was negative. On February 24 she complained of a sore throat and suddenly spiked a temperature of 104°. On examination there was evidence of a moderate follicular tonsillitis. Blood count was as follows: hemoglobin 9 gms. per 100 cc., RBC 3,910,000 per cubic millimeter, WBC 2,000 per cubic millimeter; her differential showed 91% lymphocytes, 4% prolymphocytes, 5% segmented neutrophils. Reserphine and chlorpromazine therapy was immediately discontinued. On February 25 the WBC was 1,400 per cubic millimeter and the differential count revealed 100% lymphocytes. The platelets numbered 66,000 per cubic millimeter. Bone marrow examination showed islands of normoblasts, very few granulocytic precursors and an occasional increase in reticulo-endothelial cells. The patient was treated with procaine penicillin 300,000 units b.i.d., streptomycin 0.5 gm. b.i.d. and cortisone 100 mg. daily. On February 26 the patient's temperature was normal, and it remained so. However, it was not until March 4 that granulocytes reappeared in the peripheral blood. Blood count at that time was as follows: hemoglobin 11 gms. per 100 cc., RBC 3,530,000 per cubic millimeter, WBC 5,800 per cubic millimeter; differential 51% lymphocytes, 4% monocytes, 13% segmented neutrophils, 15% non-segmented neutrophils. In the next few days the patient developed a leucocytosis, and on March 8 her WBC was 24,800 with the following differential: 38% lymphocytes, 29% non-segmented neutrophils, 18% segmented neutrophils, 3% monocytes, 3% myelocytes, 9% metamyelocytes. Her blood count then began to return to normal gradually. On March 16 her WBC was 7,750 per cubic millimeter; her differential showed 37% segmented neutrophils, 58% lymphocytes, 2% monocytes, 3% basophils. On March 17 cortisone and antibiotic medication were discontinued. On April 22 her WBC was 8,000 per cupic millimeter with 63% segmented neutrophils, 1% non-segmented neutrophils, 35% lymphocytes and 1% eosinophils.

V. O. is a 40 year old, single, white female. She has a diagnosis of Psychosis with Mental Deficiency, and has been continuously hospitalized since 1943. At the time of her admission she was described as seclusive, childish, emotionally unstable, at times silly, at times apprehensive, and at other times extremely irritable, displaying temper tantrums in which she became self-abusive and assaultive. She expressed paranoid delusions and seemed to be reacting to auditory hallucinations. Her I.Q. was measured as 61. Through the years at the hospital her mental state deteriorated somewhat; she became completely idle, rather untidy, more withdrawn, and quite disconnected in her speech. On January 4, 1955, she was started on combined reserpine-chlorpromazine therapy. She received 3 mg. reserpine and 25 mg. chlorpromazine once a day for the first eight days. Then the chlorpromazine was increased to 25 mg. twice a day. She showed no improvement in her mental symptoms, and on February 14 the dose of chlorpromazine was raised to 50 mg. twice a day, the reserpine dose remaining at 3 mg. daily. On February 21 she complained of generalized aches and pains, a sore throat and diarrhea. Her temperature was 102°. On examination pharynx and tonsils were moderately infected, and the cervical lymph nodes were palpably enlarged and tender. Later that afternoon the temperature rose to 104.6°. The patient was given procaine penicillin 600,000 units daily, and aureomycin 250 mg. four times a day. The temperature fell to 100°, but spiked to 103° on the next afternoon. The following day it again dropped in the morning, and rose to 102.6° in the afternoon. On February 25 examination of the throat revealed the presence of a grayish pseudomembrane over both tonsils. A blood count at this time was as follows: hemoglobin 11 gms. per 100 cc., RBC 3,220,000 per cubic millimeter, WBC 900 per cubic millimeter; differential 2% prolymphocytes, 98% lymphocytes. Reserpine-chlorpromazine therapy was immediately discontinued, and the patient was placed on the following medication: procaine penicillin 300,000 units twice a day, streptomycin 0.5 gm. twice a day, and cortisone 100 mg. daily. The next day the temperature was 99.6°, and her WBC was 1,100 per cubic millimeter with 3% prolymphocytes, 95% lymphocytes and 2% segmented neutrophils; platelets numbered 206,000 per cubic millimeter. Bone marrow examination revealed diminished erythroid elements, diminished granulopoiesis, and an occasional plasma cell. Subsequent blood count revealed the presence of more and more granulocytes. On March 4 her WBC was 7,950 per cubic millimeter with 54% lymphocytes, 2% monocytes, 8% metamyelocytes, 30% segmented neutrophils and 6% non-segmented neutrophils. In the next few days the patient developed a leucocytosis. On March 11 her WBC was 18,100 per cubic millimeter with 9% non-segmented neutrophils, 78% segmented neutrophils, 11% lymphocytes and 2% monocytes. The blood count gradually returned to normal, and on April 4 it was as follows: hemoglobin 12 gms. per 100 cc., RBC 3,830,000 per cubic millimeter, WBC 6,300 per cubic millimeter; differential 3% non-segmented neutrophils, 61% segmented neutrophils, 33% lymphocytes and 3% monocytes.

Comment

Reserpine has been used extensively, and, to our knowledge, there have been no reported cases of agranulocytosis due to the drug. However, there have been several instances[2,3] of agrunolocytosis in patients receiving chlorpromazine therapy. It can be assumed, therefore, that the agranulocytosis in our two cases was due to the chlorpromazine. Furthermore, the development of agranulocytosis does not seem to depend on the dosage of chlorpromazine, since we used relatively small doses of the drug.

We have reported these two cases of agranulocytosis not to discourage the use of combined reserpine-chlorpromazine therapy, but rather to call attention to a serious toxic effect so that it may be guarded against. We feel that this combined therapy is especially effective in psychotic states, and that it has certain advantages over reserpine when used alone. The chlorpromazine seems to have a definite potentiating effect on reserpine. Many cases that do not respond adequately to reserpine alone, do respond to the combined therapy. In the majority of instances it is possible to achieve satisfactory results without the use of intramuscular injections. Furthermore, the clinical course in combined therapy is less stormy and less distressing to the patient than with reserpine alone.

REFERENCES

1. (a) Barsa, J. A., and Kline, N. S.: "Combined Reserpine-Chlorpromazine Therapy in Disturbed Psychotics." *Am. J. Psychiat.*, 111:780 (Apr.) 1955.
(b) Barsa, J. A., and Kline, N. S.: "Combined Reserpine-Chlorpromazine in Treatment of Disturbed Psychotics," *A.M.A. Arch. Neurol. & Psychiat.*, 74: 280, 1955.
2. (a) Ostrow, I., Weigert, W., Schaller, H., Axel, M., Cohn, A., and Lenec, W.: "Thorazine Treatment in Psychotics: A study of 182 Cases."
(b) Willner, F. S.: "Preliminary Report on the Use of Thorazine on a Chronic Ward in a Mental Hospital."
(c) Schattner, E.: "Clinical Experience with Thorazine in Chronically Disturbed Patients."
Above papers were read on April 4, 1955, at the Downstate Interhospital Conference—New York State Department of Mental Hygiene.
3. Goldman, D.: "Treatment of Psychotic States with Chlorpromazine." *J.A.M.A.*, 157:1274-1278, (Apr. 9) 1955.

Group Psychotherapy of Male Alcoholics and Their Wives

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At the Henry Phipps Psychiatric Clinic of the Johns Hopkins Hospital, an exploratory project in the group treatment of alcoholics has been in progress for approximately one year. This project was limited to outpatient married male alcoholics whose wives would participate in accompanying but separately conducted discussion meetings. It was felt that this particular population has a relatively favorable prognosis and would be more likely to yield data on the major problem to be investigated—the value of group therapy in chronic alcoholism.

That part of the study which is summarized in this paper involved nine patients and their wives who participated in a four months group treatment program. These couples were the only ones of 45 contacted who accepted the offer of treatment and appeared for processing. Because of this, they represent a highly selected sample and the results to be reported later must be considered in this light. The program consisted of a patients' group which met twice weekly with one of the co-authors (LHG) as therapist, and a wives' group which met once weekly with another of the co-authors (HTN) as therapist. Before and after treatment, each patient was evaluated by means of four measures. These were: a drinking checklist to reflect the severity of the drinking; a symptom checklist to indicate the amount of distress from psychological symptoms; a checklist of adjectives that com-

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monly have been applied to alcoholics to estimate both the satisfaction or dissatisfaction experienced in sobriety and intoxication, and the mutual satisfaction or dissatisfaction experienced by the patients and their wives from each other in these two states; and a social ineffectiveness scale to describe interpersonal operations. The first three were completed by the patients and their wives, and the last from a structured psychiatric interview of both patients and their wives. For each of these measures, a score could be computed so that statistical handling of the data was possible.

The following results were obtained. Clinically, the patients were seriously ill but able to remain ambulatory, though imperfectly so. As a group, they were quite infantile. For them, heavy drinking constituted a way of life and in recent years the drinking was becoming worse. They came to treatment under duress, largely at the insistence of their wives. The wives appeared better organized, had more education and were the main force holding the families together. Almost all of them held full time or part time jobs to insure a dependable source of income. In most instances, the initiative for the marriages rested with the women, who usually were motivated for reasons other than the attractiveness of their husbands-to-be. The women were aware of their prospective spouses' excessive drinking so that the marriages tended to be incidents in a drinking career that already had started. The course of the marriages was stormy and the patients' alcoholism became increasingly worse. Currently the marriages were battlegrounds and the family life was so organized that everything tended to be viewed as having or not having an effect on the patient's drinking.

The seriousness of the patients' drinking was well reflected by the scores on the drinking checklist. Though they did not seem so clinically, the symptom checklist revealed considerable distress from depressiveness and irritability. Interpersonally, as indicated on the scale for social ineffectiveness, they were very ineffective. This was seen primarily in their superficial sociability, impulsiveness, dependence and sexual maladjustment. All but one of the marriages had serious sexual difficulties. In spite of the above, on the adjective checklist, most of the patients selected adjectives which implied they received much more satisfaction from sobriety than intoxication. Only two indicated the reverse. The wives tended to be dissatisfied with themselves as persons regardless of whether their husbands were sober or intoxicated. In the sober state most of the patients were satisfied with their wives. In contrast, most of the wives were dissatisfied with the patients. In the intoxicated state, both were dissatisfied with each other. This highlighs the generally unsatisfactory nature of these marriages.

It was possible to re-evaluate seven patients and their wives after treatment. On the drinking scale, five of the seven patients improved. Two patients were totally abstinent, two reduced the frequency of drinking by one half, and one only slightly. Symptomwise, the changes were similar, with marked, statistically significant decreases in irritability and depressiveness. Other than the drinking changes, there were only slight modifications in social ineffectiveness. Interpersonally, the patients continued to operate in a manner that was not much different than before the onset of treatment. However, several of the couples showed greater improvement in the area of sexual adjustment. Statistically significant changes on the adjective checklist revealed that sobriety became even more attractive to the patients, though the wives continued to be dissatisfied with themselves. In addition, both patients and wives were more satisfied with each other, indicating an improvement in marital status.

The changes reported above appear to bear a statistically significant relationship to the satisfactions derived from sobriety as opposed to intoxication and do not seem related to the duration or intensity of the patients' alcoholism. Those patients who did not improve or improved only slightly were the ones whose self descriptions on the adjective checklist when intoxicated, showed the most disagreement with their wives' description of them at that time. This finding depends to a large degree on these patients having selected adjectives denoting satisfaction to describe themselves during intoxication,

while the wives selected the opposite. To a lesser degree, it depends on the wives having selected adjectives denoting satisfaction with their husbands in the intoxicated state, while the patients selected the opposite. Were both the patients and their wives to have selected adjectives indicative of satisfaction derived from the patients' intoxication, it is unlikely that they ever would have entered treatment.

In face of the therapeutic challenge—a chronically ill alcoholic population, with marked symptoms of depression and irritability, serious interpersonal ineffectiveness, and extreme marital dissatisfaction—what did the group form of treatment have to offer?

The changes which took place fall into a certain hierarchy that is suggestive of the value of group therapy in this illness. The greatest changes were in the areas of marital milieu (satisfaction of patient and wife with each other) and personal morale (satisfaction with self). The next largest change was recorded in psychological symptoms, especially in irritability and depressiveness. Fewer, though important, changes took place in drinking behavior and the least change occurred in social ineffectiveness. If the first three of these are accepted as being components of what is known as self-esteem, it seems clear that the major contribution of the group program was here. It is to be emphasized that despite the patients' facade to the contrary, this particular group of drinkers was characterized by troubles in this area. As a group, they tended to be demoralized. It is tempting to speculate whether coping with this feeling state is one of the more important motivations for excessive drinking. In any event, it is felt that the group makes its special contribution in the treatment of chronic alcoholism by the raising of morale or self-esteem. The group can accomplish this for several reasons. First, it offers a desirable medium for the use of one of the major interpersonal resources of alcoholics, superficial sociability. They can function in the group with less threat by using or improving this means of relating, or by experimenting with others. Not only this, the opportunity to socialize in a manner for which they are equipped is valuable in itself. It enables them to continue having those esteem enhancing experiences they have been able to achieve by this means in the past, but with a sufficient enough difference so as not to be considered the maximum of which they are capable. Secondly, in a group the patients can take treatment at their own pace. They can participate psychologically as desired or withdraw psychologically if needed. Again, this has the effect of decreasing the threatening aspects of treatment. Thirdly, an all alcoholic group fosters mutual identification and support, which ordinarily is difficult for such patients to achieve. Usually, these patients are so preoccupied with their own crises, that they are insulated from many available healthful influences. In a group, they more readily can be encouraged or even pulled up by the bootstraps of a fellow alcoholic's success or spontaneous remission. Finally, the group tends to dilute the transference reactions so that the strong, often esteem damaging, drink precipitating feelings for which these patients are notorious, are more comfortably controlled and more likely to be faced. In other words, the group maximizes the conditions for optimal functioning of alcoholics in a treatment situation, while minimizing the occasions for realization of their worst potentialities. This enhances morale or self esteem by creating a non threatening, supporting, socially rewarding, flexible, yet challenging atmosphere which is within the patients' range of capabilities, so that a desired goal, sobriety, is perceived as attainable.

The involvement of the wives added a very special value to this program. The patients and their wives were both implicated materially in the pathological drinking. The wives were most vocal about the difficulties produced by the husbands' drinking. In fact, they constituted the major pressure which forced the patients into treatment. It was almost as if the patients as a group had the pathological sign, while the wives experienced the suffering. For this reason, including both in the treatment process was tantamount to treating not only the symptom but the patient as a whole. In this instance, the patient was the family unit and properly the focus of the therapeutic effort.

There seemed to be other advantages to having concurrent groups for the patients and for their wives. This type of treatment structure in itself had the effect of emphasizing the excessive drinking while also placing stress on the marriage and other related pyschological factors which play an important role in alcoholism. For immature individuals as these, setting the proper therapeutic task, especially in a more or less automatic, non-verbal manner, was a major accomplishment. It enabled them to know what was expected and served as a constant frame of reference within which the therapy proceeded. The fact that the two groups did not meet together provided the needed privacy for consideration of the very conflict-laden intramarital situation. Again, with both members of the couple in the program, coming into treatment was less likely to have been construed as an admission of guilt or to have been used as a weapon than would have been the case were only one of the pair involved.

The use of the adjective checklist in this study as a means of describing the marital status and following changes which occur in it, has been sufficiently justified to warrant further trial and perhaps modification to fit other situations where the family rather than one of its members is the treatment unit. As a means of getting behind the obscuring features of the alcoholic crises, and estimating the healthful motivation some of the patients may have, it also seems potentially valuable. In this study, it revealed that sobriety was satisfying enough for several of the patients to want more of it, while intoxication was sufficiently dissatisfying to act as an important spur to change. Not only this, satisfactions obtained during intoxication were related to lack of improvement. These satisfactions could either have been experienced by the patient from his intoxication or by his wife from his intoxication. The specific result in this study which emphasizes this, is the one in which it was found that the greater the discrepancy between a patient's self description during intoxication and the wife's description of the patient during intoxication, the less the improvement. Using the adjectives selected as the means for estimating satisfaction or dissatisfaction, such patients appear to have been receiving something while intoxicated to make it more attractive than sobriety. Or their wives have been receiving something from their husbands' intoxication which led them to play an important and recurring role in inducing it. Whatever the basis for this may be, where patients or their wives held such perceptions, they did not appear accessible to this particular kind of treatment. Whether it was a matter of these patients not being able to be reached in a group therapy setting, or whether they did not fit in a group where the majority did not share their views on intoxication, is not known. In itself, this finding only verifies statistically what has been known clinically. However, its value lies in the fact that this information is not readily available when alcoholics are first seen. On the surface, alcoholics may look very much alike. In addition, they tend to elicit hostile reactions from those trying to help them because the nature of drunkenness is such that it usually is responded to as something offensive or immoral. Regardless of the reaons for this, the effect is to hide not only many of the healthier characteristics of these patients, but the unhealthier ones as well. The checklist is an attempt to better evaluate these patients in spite of their pathological drinking and in spite of the prevailing attitudes on intoxication. It is in the process of further exploration as a means of estimating motivation, but the small number of patients and the need for follow-ups make additional generalization unwarranted at present.

This investigation also serves to highlight another finding. Each of the patients entered treatment unwillingly. Traditionally, this has been considered antitherapeutic. Yet the changes obtained in this limited study would seem to indicate otherwise. One wonders whether the effect of the pressure is dissipated if the source of the pressure is also included in the treatment program. Implicit in the wives' participation, may be their tacit recognition of their own need to change. This not only may lessen many of the esteem damaging aspects perceived by the patients as being associated with their coming into treatment, but also can lead to a constructive, hopeful attitude for both.

Book Reviews

CHLORPROMAZINE AND MENTAL HEALTH. Proceedings of Symposium at Philadelphia, June, 1955. Cloth. $3.00. Pp. 200 with illustrations. Lea & Febinger, Washington Square, Philadelphia, Pa.

The book assembles the reported transcripts of a one-day symposium of formal presentations and informal discussions on the effects of chlorpromazine on severe as well as moderate and mild mental and emotional disturbances; on its psychiatric effectiveness as it may reflect progress within mental hospital settings; and on measures calculated to keep discharged patients from relapsing and requiring re-institutionalization. Considerable clinical material is analyzed throughout, and the impact of chemotherapy on the over-all problem receives provocative discussion reflective of greater effort toward a new dimension in psychiatric interest, systematic research and clinical activity in the field of mental disease.

The possibility of attainment, in many instances, of early psychotherapeutic confrontation of patient and psychological material, after therapeutic exposure to chlorpromazine, receives the consensus of favorable expression. In the hands of some of the proponents, administration of the drug, within the armamentarium of somatic therapy, produces no dysmnesia nor clouding of consciousness and in contrast with psychosurgery does not subject the patient to ego-identical loss of affective tension. While referring to the numerous unpredictable and paradoxical responses to the drug, certain encyclopedic conclusions were advanced by a representative percentage of the symposium participants. The drug was shown to be a valuable chemotherapeutic adjunct in the anxieties, tension states and incipient schizophrenias, and to be least effective in the treatment of states of hypoactivity, depression unassociated with agitation, and lethargy. Among other variables has been included a profusion of experiential discussions respecting the dosage question with opinions as to amounts of starting dosage, the speed with which the maximum amounts should be reached, and the size of maintenance doses, within specific diagnostic categories, for both recovered and "in-remission" type patients discharged to their homes under extramural care. Considerable space and attention is devoted to the problems of rehabilitation following recovery in acute mental breakdown and following improved status in chronic patients; the side effects and possible complications of drug maintenance therapy; the limitations of the applicability of this drug in psychiatric conditions. While the varying changes in surface phenomena received much favorable consideration, the consensus of the symposium's participants was an emphasis upon the pressing need for continued research into the specific nature of the pharmacological action of chlorpromazine, the development of a true laboratory background for its therapeutic rationale and the necessity for scientific investigation of the physiologic mechanisms of mental illness.

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PRINCIPLES OF PUBLIC HEALTH ADMINISTRATION by John J. Hanlon, M.S., M.D., M.P.H. Medical Director, U.S. Public Health Service. Second Edition. Cloth. Pp. 693. The C. V. Mosby Company, 2307 Washington Blvd., St. Louis, Mo., 1955.

This book traces historically, the advances of public health as a product (health) toward the recipient (society), in so far as they have kept pace with medical knowledge and social and political progress. The complexity of public health administrative responsibilities, particularly as these tasks concern organizational, personnel, legal, and the public relations aspects of an integrated public health program, is methodically dealt with. The patterning of public activities is analyzed in respect of set-ups of ilocal, state and the federal health services, development and function of laboratory facilities, the scope of health education and problems of prevention, together with factors of control related to communicable, chronic disease, nutrition, occupational, rehabilitative, mental, economic, and associated elements influencing the need for medical care. The development and present programming structure of medical participation in tax-supported plans and their faults and limitations receive comprehensive discussion from the standpoint of equalization of geographic and economic differences between regions and individual citizens, in regard to diagnosis and care. The potential dangers of political influence in the selection of patients, appointment of administrative and professional personnel as well as selection and supervision of trained practitioners, are discussed from a practical approach. In keeping with the postulate of Paul Russell that "nothing on earth is more international than disease," the book properly ends with a chapter on world health problems in which is traced the background of international health cooperation from the time of the pilgrimages which brought repeated disease by infection of villages, ships and ports, and disseminated epidemics among those who travelled from different parts of the world only to return to their home countries bearing the seeds of deadly devastation—to the present development of world health organizations which, while of necessity, rather new and varied, is indicative of a pulling together in a cooperative correlation toward the ultimate achievement of world health and through it indirectly, the goal of world peace. The book is thorough and expertly written, and may be used with profit by those concerned with preventive medicine, public health and its professional disciplines, and its social, educational and human influences.

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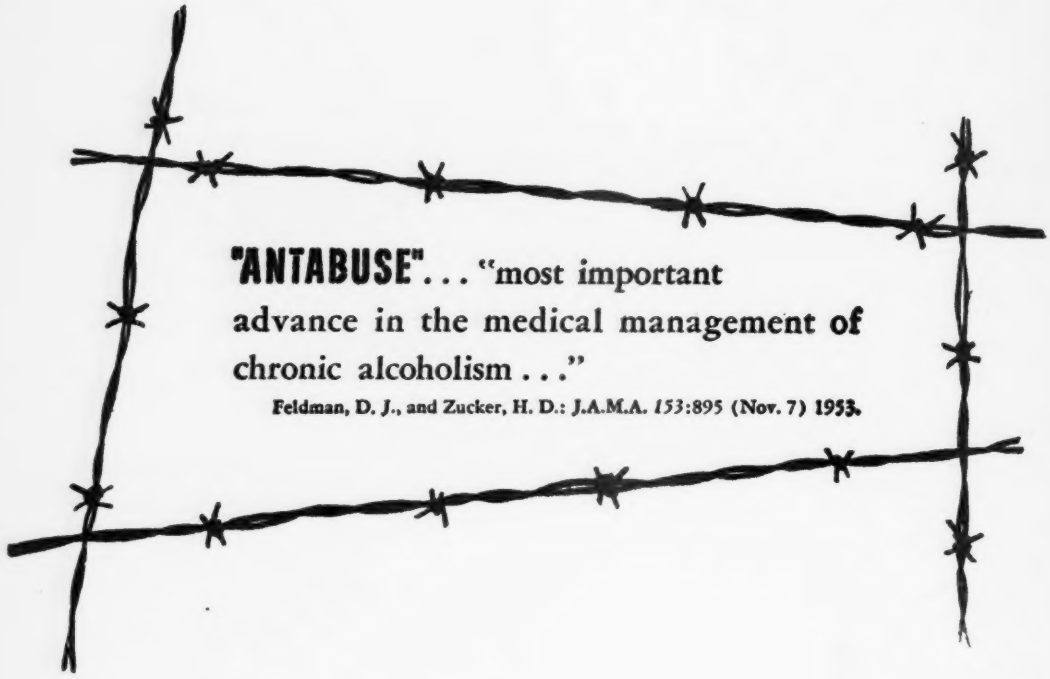
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